

MATH2111 Class Exercise 6

Family Name	Other Names	Student No.

CALCULATORS MUST NOT BE USED

1. Consider the table below which shows how the prime number algorithm has produced the 11th prime $p_{11} = 31$. In the table, k is the “count”, i is the possible prime, j is a possible divisor of i and l is the smallest odd divisor (> 1) of i .

- (a) How many extra rows need to be completed to find the next prime p_{12} ?
 [Hint: it will help if you answer the next part of the question first.]

(2)

- (b) Complete the next five rows of the table.

$\frac{k}{11}$	$\frac{i}{31}$	$\frac{j}{3}$	$\frac{j \mid i}{F}$	$\frac{l}{5}$	$\frac{i = l}{T}$	$\frac{p_k}{31}$
		5	F			
		\vdots	\vdots			
		29	F			
		31	T	31	T	31

(3)

- (c) What is p_{12} ?

(1)

- (a) Complete the table for the case of 3 discs.

(3)

- (1)